The claims have been amended to limit them to the embodiment considered allowable by the Examiner, i.e., of Claims 6 and 7, as well as to obviate the Examiner's objections. No new matter has been introduced thereby.

Claims 52-88 have been added paralleling the other claims, i.e., Claims 1, 6-27 and 31-51, except being directed to the embodiment of Claim 4.

Added Claim 89 corresponds to the embodiment of Claim 4, but not including Fe^{2+} and Ni^{2+}.

REMARKS

Favorable reconsideration of this application is requested.

Claims 1, 6-24, 26, 27, 31-40 and 42-89 are in the case.

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. This has now been done. Specifically, the limitations of Claims 6 and 7 have been incorporated into Claim 1, the generic claim, thus clearly making allowable Claims 1, 6-24, 26, 27, 31-40 and 42-51 and obviating their rejections under 35 U.S.C. § 102 and 103 over the references relied upon by the Examiner. Withdrawal of their rejection thus is requested.

It is submitted that added Claims 52-89 also patentably distinguish over the cited art. More particularly, while in Nakayama et al. Fe and Ni are disclosed (col. 6, lines 10-16), they are disclosed only as optional dopant metals useful *per se*, not as ions or oxides. Note that Claim 89 also does not include any Fe^{2+} or Cr^{2+} ions or oxides.

Further, the mechanism by which the titanium oxide photocatalyst is rendered hydrophilic by irradiation with ultraviolet rays is presumed as follows. When the titanium

oxide photocatalyst is hydrophobic, oxygen O^{2-} is bonded in the form of a bridge between Ti^{4+} ions on the surface thereof. Upon irradiation of this with ultraviolet rays, the bridge-like O^{2-} is converted to an 0 atom, which is eliminated from the surface and the two electrons released from the eliminated 0^{2-} reduce two adjacent Ti^{4+} to form (Ti^{3+})s. Then, water molecules in the air are adsorbed to the oxygen deficient portion to form hydroxyl groups. These hydroxylgroups further adsorb water molecules from the air and thereby a layer of hydroxyl groups is formed on the surface of the coat layer, resulting in hydrophilicity. Thus, the phenomenon of hydrophilization of the titanium oxide photocatalyst starts from the reduction process of Ti^{4+} under irradiation with ultraviolet rays. Addition of at least one of Fe^{2+}, Mn^{2+}, Cr^{3+}, and Cu^{2+} into a titanium oxide photocatalyst layer in a small amount promotes the reduction process of Ti^{4+}.

This is not the mechanism by which the printing plate of Nakayama et al. is prepared and used. Specifically, in order for the printing plate of Nakayama et al. to function in its intended manner, the hydrophilic area of the exposed area is made hydrophobic by heat treatment prior to use. Note, column 3, lines 12-13. In contrast thereto, the metallic component used with TiO_2 in the invention is employed to promote the composition of the organic material and to effect converting the surface of the titanium oxide for the catalyst itself into a hydrophilic surface. According to the present invention, heat treatment does not make the surface of the titanium oxide for the catalyst hydrophobic. A different and nonanalogous effect thus manifestly is obtained by the claimed invention.

Nakayama et al thus clearly neither anticipates, within the meeting of 35 U.S.C. § 102, nor makes obvious, within the meaning of 35 U.S.C. § 103 Applicants' discovery as also defined by Claims 52-89.

The secondary references D'Heureuse et al. and Gelbart et al. manifestly do not cure

the basic deficiencies of Nakayama et al. They are relied upon only for asserted obviousness of subsidiary claim features. As such, they manifestly do not remedy the inadequacies of Nakayama et al.

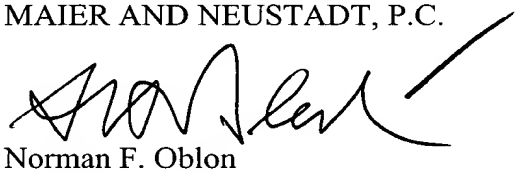
With regard to the objections to the disclosure and claims, they have been amended and/or claims canceled in a manner believed to obviate these objections. Their withdrawal thus is requested.

Should any further amendment be considered necessary by the Examiner, he is requested the contact the undersigned by telephone so that mutually agreeable language may be arrived at.

It is submitted that this application is now in condition for allowance, which is solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER AND NEUSTADT, P.C.



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Marked-Up Copy
Serial No: 09/646,876
Amendment Filed: HEREWITH

IN THE SPECIFICATION

Please amend the paragraph beginning at line 3 on page 20 as in the attached marked-up copy to read as follows:

A thirtieth aspect of the present invention is a printing plate metal as in the twenty-eighth aspect, in which the group [VIB] VIA metal is any of Ge, Sn, and Pb.

IN THE CLAIMS

1. (Twice Amended) A printing plate material comprising a substrate on the surface of which a coat layer containing a titanium oxide photocatalyst and at least one member selected from the group consisting of [Fe^{2+}, Ni^{2+}, Mn^{2+}, Cr^{3+}, and Cu^{2+} in the form of a salt or an oxide, or] a group VIB metal selected from the group consisting of W, Mo, and Cr, or a group IVA metal selected from the group consisting of Ge, Sn, and Pb, or an oxide [thereof] of the group VIB or IVA metal, is formed directly or with an intermediate layer intervening between the substrate and the coat layer.

4. (Canceled).

9. (Twice Amended) The printing plate material as claimed in claim 1, wherein the surface of said coat layer is [converted] convertible to a hydrophilic surface having a water contact angle of 10° or less by irradiation with light having a wavelength at an energy level

higher than a band gap energy level of the titanium oxide photocatalyst.

21. (Twice Amended) The printing plate material as claimed in claim [1] 16 wherein at least a portion of the surface of said coat layer is a hydrophilic surface, and the hydrophilic surface is reconvertible to a hydrophobic surface having a water contact angle of at least 50° by light irradiation thereon and an electrochemical treatment thereon.

22. (Twice Amended) The printing plate material as claimed in claim 1, wherein at least a portion of the surface of said coat layer is a hydrophilic surface, and the hydrophilic surface is reconvertible to a hydrophobic surface having a water contact angle of at least 50° by cleaning the surface and renewing the surface of the coat layer containing the titanium oxide catalyst to renew the catalyst.

25. (Canceled).

35. (Twice Amended) The printing plate material as claimed in claim 1, wherein at least a portion of the surface of said coat layer is convertible to a hydrophilic surface, and the hydrophilic surface is reconvertible to a hydrophobic surface having a water contact angle of at least 50° [by a chemical reaction or strong non-chemical interaction] with a compound having an organic hydrophobic group in its molecule.

40. (Twice Amended) The printing plate material as claimed in claim 1, which can be repeatedly used by repeating the steps of:

preparing a printing plate in which at latent image, which comprises a hydrophobic portion which is not irradiated with light and a portion which is irradiated with light to be changed to a hydrophilic surface, is formed by irradiating the printing plate material with light having an energy higher than a band gap energy of the titanium oxide photocatalyst, and

renewing the printing plate material by [allowing] bringing at least the hydrophilic portion on the surface of the plate material [to chemically react or strongly non-chemically

interact] into contact with a compound having an organic hydrophobic group in its molecule after removing an ink from the surface of the printing plate material after completion of printing.

41. (Canceled).

51. (Twice Amended) A method for preparing and renewing a printing plate material, the method of comprising the steps, which are performed in a printing machine, of preparing a printing plate by irradiation of a surface of a coat layer of a printing plate material as claimed in claim 24 with light having a wavelength having an energy higher than a band gap energy of titanium oxide photocatalyst to cause the above described surface of the coat layer in the irradiated region to emerge,

cleaning the outermost surface including the surface of the coat layer which has emerged, and

renewing the coating layer [are performed in a printing machine].

52-89. (New).